WHAT IS CLAIMED IS:

1. A method of manufacturing a polyelectrolyte comprising the step of sulfonating polystyrene resin in a state where said polystyrene resin has been dissolved or dispersed in solvent composed of alicyclic compounds.

2. A method of manufacturing a polyelectrolyte according to claim 1, wherein cycloparaffin is employed as said alicyclic compounds.

3. A method of manufacturing a polyelectrolyte according to claim 2, wherein cyclohexane or its derivative is employed as said cycloparaffin.

4. A method of manufacturing a polyelectrolyte according to claim 1, wherein the used solvent is recovered after said sulfonation has been performed.

5. A method of manufacturing a polyelectrolyte according to claim 4, wherein the recovered solvent is again used when the sulfonation is performed.

6. A polyelectrolyte comprising copolymers composed of styrene and conjugate diene to which ion groups have been introduced, wherein conjugate diene units in said copolymer

are crosslinked and/or polymerized, said sulfonic acid having water solubility.

7. A polyelectrolyte according to claim 6, wherein said ion group is at least a material selected from a group consisting of sulfonic acid, its salt, chloromathylated amine salt, carboxylic acid, its salt, $PO(OH)_2$, its salt, $CH_2PO(OH)_2$ and its salt.

8. A polyelectrolyte according to claim 6, wherein said ion groups are introduced by 20 mol% or more with respect to all monomer units.

9. A polyelectrolyte according to claim 6, wherein said copolymer contains the conjugate diene units by 0.05 mol% to 20 mol% with respect to all monomer units.

10. A polyelectrolyte according to claim 6, wherein said copolymer contains the conjugate diene units by 0.1 mol% to 10 mol% with respect to all monomer units.

11. A polyelectrolyte according to claim 6, wherein the molecular weight Mw of said polyelectrolyte is 600,000 or more.

12. A polyelectrolyte according to claim 11, wherein said polyelectrolyte is used as polymer coagulant for disposing waste water.

13. A method of manufacturing a polyelectrolyte comprising the steps of:

introducing ion groups into copolymer composed of styrene and conjugate diene; and

crosslinking and/or polymerizing conjugate diene units in said copolymer so that said polyelectrolyte is refined into a water soluble polyelectrolyte.

14. A method of manufacturing a polyelectrolyte according to claim 13, wherein said ion group to be introduced is a material selected from a group consisting of sulfonic acid, its salt, chloromethylated amine salt, carboxylic acid, its salt, $PO(OH)_2$, its salt, $CH_2PO(OH)_2$ and its salt.

15. A method of manufacturing a polyelectrolyte according to claim 13, wherein said ion groups are introduced by 20 mol% or more with respect to all monomer units.

16. A method of manufacturing a polyelectrolyte according to claim 13, wherein said copolymer contains the conjugate diene units by 0.05 mol% to 20 mol% with respect to all monomer units.

17. A method of manufacturing a polyelectrolyte according to claim 13, wherein said copolymer contains the conjugate diene units by 0.1 mol% to 10 mol% with respect to all monomer units.

18. A method of manufacturing a polyelectrolyte according to claim 13, wherein said polyelectrolyte is refined in such a manner that the molecular weight Mw is made to be 600,000 or more.

19. A method of manufacturing a polyelectrolyte according to claim 18, wherein said polyelectrolyte is refined so as to be used as polymer coagulant for disposing waste water.

20. A method of sulfonating aromatic polymers, comprising the steps of:

adding aromatic polymers to solvent which is continuously supplied so that the aromatic polymers are dissolved;

supplying a sulfonating agent to said solvent to perform sulfonating reactions;

separating reactant solid materials generated during the sulfonating reactions and the solvent from each other; and

returning the separated solvent so as to be again used in said sulfonating reactions.

21. A method of sulfonating aromatic polymers according to claim 20, wherein the separated reactant solid materials are as it is dried so that sulfonated substances of the aromatic polymers are obtained.

22. A method of sulfonating aromatic polymers according to claim 20, wherein the separated reactant solid materials are dissolved in water or alkaline solution so that water solution of the aromatic polymers into which sulfonate has been introduced is obtained.

23. A method of sulfonating aromatic polymers according to claim 20, wherein said solvent is alicyclic hydrocarbon.

24. A method of disposing plastic containing halogen flame retardant, comprising the steps of:

processing plastic containing halogen flame retardant with acid in organic solvent to introduce ion groups into resin components to form water soluble polymers; and

separating the halogen flame retardant in said organic solvent.

25. A method of disposing plastic containing halogen flame retardant according to claim 24, wherein said plastic containing the halogen flame retardant is waste plastic.

26. A method of disposing plastic containing halogen flame retardant according to claim 24, wherein said halogen flame retardant is bromine flame retardant.

27. A method of disposing plastic containing halogen flame retardant according to claim 24, wherein said resin component is a polymer having an aromatic ring.

28. A method of disposing plastic containing halogen flame retardant according to claim 27, wherein said polymer having said aromatic ring is styrene polymer.

29. A method of disposing plastic containing halogen flame retardant according to claim 24, wherein said ion group is at least one material selected from a group consisting of a sulfonate group, its salt, a carboxyl group, its salt, hydroxyl group, its salt, phosphate group or its salt.

30. A method of disposing plastic containing halogen flame retardant according to claim 24, wherein said organic solvent is at least one material selected from a group consisting of alicyclic hydrocarbon solvent, aliphatic halogenated hydrocarbon solvent and nitrated solvent.

31. A method of disposing plastic containing halogen flame retardant according to claim 24, wherein said water soluble polymers from which the halogen flame retardant has been separated and removed are recovered so as to be again used.

32. A polyelectrolyte comprising copolymers composed of styrene and conjugate diene to which ion groups have been introduced, wherein said polyelectrolyte has water solubility.

33. A polyelectrolyte according to claim 32, wherein said ion group is at least a material selected from a group consisting of sulfonic acid, sulfonate and chloromathylated amine salt.

34. A polyelectrolyte according to claim 33, wherein said copolymers contain conjugate diene units by 0.1 mol% to 20 mol% with respect to all of monomer units.

35. A polyelectrolyte according to claim 33, wherein said ion groups are introduced by 20 mol% or more with respect to all of monomer units.

36. A polyelectrolyte according to claim 32, wherein said ion group is at least a material selected from a group consisting of sulfonic acid, its salt, chloromathylated amine

salt, carboxylic acid, its salt, $PO(OH)_2$, its salt, $CH_2PO(OH)_2$ and its salt, said ion groups containing inorganic pigment.

37. A polyelectrolyte according to claim 36, wherein said inorganic pigment is carbon black.

38. A polyelectrolyte according to claim 36, wherein said copolymer containing conjugate diene units by 0.05 mol% to 60 mol% with respect to all of monomer units.

39. A polyelectrolyte according to claim 36, wherein said ion groups are introduced by 20 mol% or more with respect to all of monomer units.

40. A method of manufacturing a polyelectrolyte, comprising the step of introducing ion groups into copolymer of styrene and conjugate diene.

41. A method of manufacturing a polyelectrolyte according to claim 40, wherein at least one material selected from a group consisting of sulfonic acid, sulfate and chloromethylated amine salt is introduced as said ion group.

42. A method of manufacturing a polyelectrolyte according to claim 41, wherein a material containing conjugate

diene units by 0.1 mol% to 20 mol% with respect to all of monomer units is employed as said copolymer.

43. A method of manufacturing a polyelectrolyte according to claim 41, wherein said ion groups are introduced by 20 mol% or more with respect to all of monomer units.

44. A method of manufacturing a polyelectrolyte according to claim 40, wherein at least a material selected from a group consisting of sulfonic acid, its salt, chloromathylated amine salt, carboxylic acid, its salt, $PO(OH)_2$, its salt, $CH_2PO(OH)_2$ and its salt is introduced as said ion groups in a state where inorganic pigment is allowed to exist in a reaction system.

45. A method of manufacturing a polyelectrolyte according to claim 44, wherein carbon black is allowed to exist as said inorganic pigment.

46. A method of manufacturing a polyelectrolyte according to claim 44, wherein the content of said inorganic pigment in said reaction system is 0.01 wt% to 20 wt% with respect to the copolymer components.

47. A method of manufacturing a polyelectrolyte according to claim 44, wherein a material containing conjugate

diene units by 0.05 mol% to 60 mol% with respect to all of monomer units is employed as said copolymer.

48. A method of manufacturing a polyelectrolyte according to claim 44, wherein said ion groups are introduced by 20 mol% or more with respect to all of monomer units.

49. A polyelectrolyte composition comprising:
water soluble polystyrene polyelectrolyte; and
stabilizer.

50. A polyelectrolyte composition according to claim 49, wherein said stabilizer contains an oxidation preventive agent composed of at least one material selected from a group consisting of a phenol oxidation preventive agent, a sulfur oxidation preventive agent, a phosphor oxidation preventive agent, erysorbic acid, erysorbic acid soda and isopropyl citrate.

51. A polyelectrolyte composition according to claim 49, wherein said stabilizer is a light stabilizer composed of at least one material selected from a group consisting of a benzophenol stabilizer, a benzotriazole stabilizer, a hindered amine stabilizer, a cyanoacrylate stabilizer, a salicylate stabilizer and oxalicacid anilide stabilizer.

52. A polyelectrolyte composition according to claim 49, wherein said stabilizer contains an oxidation preventive agent and a light stabilizer.

53. A polyelectrolyte composition according to claim 49, wherein said stabilizer is contained by 0.002 parts by weight to 10 parts by weight with respect to 100 parts by weight of said polystyrene polyelectrolyte.

54. A polyelectrolyte composition according to claim 49, wherein at least one material selected from a group consisting of sulfonic acid, sulfonate, carboxylic acid, carboxylate, $-PO(OH)_2$, $-PO(OH)_2$ salt, $-CH_2PO(OH)_2$ and $-CH_2PO(OH)_2$ salt is introduced into said polystyrene polyelectrolyte.

55. A method of manufacturing a polyelectrolyte composition such that polystyrene polyelectrolyte and stabilizer are mixed so that said polyelectrolyte composition is manufactured, said method of manufacturing a polyelectrolyte composition comprising the step of:

adding said stabilizer when ion groups are introduced into styrene polymers or when water soluble styrene monomers are polymerized or copolymerized to refine said polystyrene polyelectrolyte.

56. A sulfonation method comprising the step of allowing alicyclic unsaturated hydrocarbon to exist when resin containing styrene polymers is sulfonated in solvent.

57. A sulfonation method according to claim 56, wherein said styrene polymers contain styrene units by 30 mol% or more of total units and said styrene polymers are contained by 20 wt% or more of the overall quantity of said resin.

58. A sulfonation method according to claim 56, wherein said resin containing said styrene polymers is a waste.

59. A sulfonation method according to claim 56, wherein said alicyclic unsaturated hydrocarbon is six membered ring alicyclic unsaturated hydrocarbon.

60. A sulfonation method according to claim 56, wherein said alicyclic unsaturated hydrocarbon is allowed to exist by 0.01 wt% to 5 wt% with respect to said styrene polymers.

61. A sulfonation method according to claim 56, wherein said resin containing said styrene polymers previously contains alicyclic unsaturated hydrocarbon.

62. A sulfonation method according to claim 61, wherein said resin containing said styrene polymers is obtained by

contracting foamable styrol with said alicyclic unsaturated hydrocarbon and recovering the contracted foamable styrol.

63. A sulfonation method according to claim 62, wherein said alicyclic unsaturated hydrocarbon is limonene.

64. A sulfonation method according to claim 56, wherein said resin containing said styrene polymers contains inorganic pigment.

65. A sulfonation method according to claim 63, wherein said inorganic pigment is carbon black and/or titanium oxide.

66. A sulfonation method according to claim 63, wherein said inorganic pigment is contained by 0.01 wt% to 10 wt% with respect to said resin containing said styrene polymers.